

(1) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch-and-roll and installed in accordance with the instrument requirements prescribed in § 121.305(j) of this chapter.

(2) Helicopters with a third attitude instrument system usable through flight attitudes of ± 80 degrees of pitch and ± 120 degrees of roll and installed in accordance with § 29.1303(g) of this chapter.

(3) Helicopters with a maximum certificated takeoff weight of 6,000 pounds or less.

(b) A slip skid indicator.

(c) A gyroscopic bank-and-pitch indicator.

(d) A gyroscopic direction indicator.

(e) A generator or generators able to supply all probable combinations of continuous in-flight electrical loads for required equipment and for recharging the battery.

(f) For night flights—

(1) An anticollision light system;

(2) Instrument lights to make all instruments, switches, and gauges easily readable, the direct rays of which are shielded from the pilots' eyes; and

(3) A flashlight having at least two size "D" cells or equivalent.

(g) For the purpose of paragraph (e) of this section, a continuous in-flight electrical load includes one that draws current continuously during flight, such as radio equipment and electrically driven instruments and lights, but does not include occasional intermittent loads.

(h) Notwithstanding provisions of paragraphs (b), (c), and (d), helicopters having a maximum certificated takeoff weight of 6,000 pounds or less may be operated until January 6, 1988, under visual flight rules at night without a slip skid indicator, a gyroscopic bank-and-pitch indicator, or a gyroscopic direction indicator.

[Doc. No. 24550, 51 FR 40709, Nov. 7, 1986, as amended by Amdt. 135-38, 55 FR 43310, Oct. 26, 1990]

§ 135.161 Communication and navigation equipment for aircraft operations under VFR over routes navigated by pilotage.

(a) No person may operate an aircraft under VFR over routes that can be

navigated by pilotage unless the aircraft is equipped with the two-way radio communication equipment necessary under normal operating conditions to fulfill the following:

(1) Communicate with at least one appropriate station from any point on the route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.

(2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E surface area designated for an airport in which flights are intended; and

(3) Receive meteorological information from any point en route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.

(b) No person may operate an aircraft at night under VFR over routes that can be navigated by pilotage unless that aircraft is equipped with—

(1) Two-way radio communication equipment necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section; and

(2) Navigation equipment suitable for the route to be flown.

[Doc. No. FAA-2002-14002, 72 FR 31684, June 7, 2007, as amended by Amdt. 135-116, 74 FR 20205, May 1, 2009]

§ 135.163 Equipment requirements: Aircraft carrying passengers under IFR.

No person may operate an aircraft under IFR, carrying passengers, unless it has—

(a) A vertical speed indicator;

(b) A free-air temperature indicator;

(c) A heated pitot tube for each airspeed indicator;

(d) A power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source;

(e) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators;

(f) For a single-engine aircraft:

(1) Two independent electrical power generating sources each of which is